

Abstract Of The Disclosure

High strength aluminum alloys based on the Al-Zn-Mg-Cu alloy system preferably include high levels of zinc and copper to provide increased tensile strength without sacrificing toughness. In addition, small amounts of scandium are also preferably employed to prevent recrystallization. Preferred ranges of the elements include by weight, 8.5-11.0% Zn, 1.8-2.4 % Mg, 1.8-2.6% Cu, 0.05-0.30% Sc and at least one element from the group Zr, V, or Hf not exceeding about 0.5%, the balance substantially aluminum and incidental impurities. During formation of the alloys, a homogenization process is preferably employed after alloy ingot casting in which a slow rate of temperature increase is employed as the alloy is heated as near as possible to its melting temperature. For the last 20-30F below the melting temperature, the rate of increase is limited to 20F/hr. or less to minimize the amount of low melting point eutectic phases and thereby further enhance fracture toughness of the alloy.